UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,490	04/19/2001	Kazuyoshi Takeda	P5970a	8914

20178   7590   08/06/2004

EPSON RESEARCH AND DEVELOPMENT INC
INTELLECTUAL PROPERTY DEPT
150 RIVER OAKS PARKWAY, SUITE 225
SAN JOSE, CA 95134

EXAMINER
PROCTOR, JASON SCOTT

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 08/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Office Action Summary	**Application No.**	**Applicant(s)**
		09/838,490	TAKEDA ET AL.
		Examiner	**Art Unit**	
		Jason Proctor	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>*10 September 2001*</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>*6-16*</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>*6-16*</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>*15 August 2001*</u> is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All b) ☐ Some * c) ☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-5 have been cancelled. Claims 6-16 have been presented for examination.

2.   Claims 6-16 have been rejected.

3.   Examiner acknowledges the attorney's request received June 7, 2004 to advise the applicant of the current status of this application. In view of this office action, no further notice is deemed necessary.

4.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

5.   35 U.S.C. §112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. §112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: "In accordance with the embodiment of the present invention, the automated evaluation system is composed as an automated evaluation system that performs an automated evaluation through loading an automated evaluation program onto a personal computer through a storage media that stores the automated evaluation program and rendering the personal computer to execute an operation by the automatic automated evaluation program," (page 8, lines 6-12). "As a result, in an automated evaluation by the automated evaluation

system and the simulation apparatus, a function for automated evaluation does not need to be implemented to perform the automated evaluation," (page 5, lines 10-12). "Also a program in accordance with the present invention, in which the program renders a computer to perform an automated evaluation of a application program to be operated on a target system according to a given input event and a reference output result corresponding to the given input event, is accessible to a simulation apparatus that simulates an operation of the application program, and compares a simulation result corresponding to the given input event by the simulation apparatus with the reference output result to thereby render the computer to perform an automated evaluation of the application program," (page 5, lines 15-28).

6.   A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

7.   The disclosure is objected to because of the following informalities: "VRAM (Visual Random Access Memory)" (page 3, lines 26-30) is inconsistent with the known meaning of "VRAM". See Microsoft Computer Dictionary, Fifth Edition. Video Ram: A special type of dynamic RAM (DRAM) used in high-speed video applications. Video RAM uses separate pins for the processor and the video circuitry, providing the video circuitry with a back door to the video RAM. The video circuitry can access the video RAM serially (bit by bit), which is more appropriate for transferring pixels to the screen than is the parallel access provide by conventional DRAM. *Acronym*: VRAM.

Appropriate correction is required.

8.   The disclosure is objected to because of the following informalities: "long file" (page 14, lines 24-28) is inconsistent with "log file" (page 14, lines 13-14). Examiner will presume "log file" for the remainder of this prosecution.

Appropriate correction is required.

9.   Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

10.   The following is a quotation of the first paragraph of 35 U.S.C. §112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11.   Claims 6-15 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the

time the application was filed, had possession of the claimed invention. The specification makes no reference to a system command which invokes the evaluator to transmit an event in response. The specification discloses that the validator controls the execution of the emulator and takes no command from any outside influence. Examiner will presume "through an operating system command" for the remainder of this prosecution.

Appropriate correction is required.

12.   Claims not specifically mentioned are rejected by virtue of their dependence upon the claims listed.

13.   The following is a quotation of the second paragraph of 35 U.S.C. §112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14.   Claims 6-16 are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

15.   Claims 6-16 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

16.   Regarding Claim 6, it is unclear how an automated evaluation of the application program is performed based on what is previously claimed. It is unclear how the act of comparing the simulation result to the corresponding reference result relates to performing an automated evaluation of the application program.

17.   Regarding Claim 6, it is unclear what is meant by the limitation that the evaluator "transmits each input event in response to a system command". According to the disclosure, the evaluator functions independently of outside influences and transmits input events through system commands but not in response to system commands.

18.   Claim 6 recites the limitation "system command" in line 3. This limitation lacks proper and precise antecedent basis. It is unclear whether "system command" refers to the system of the claim or to a computer operating system as taught in the disclosure.

19.   Regarding Claim 10, Claim 10 includes the limitations of Claim 6, further limiting said system command, but fails to make clear how the evaluator would transmit each input event in response to an application programming interface command.

20.   Regarding Claim 11, Claim 11 includes the limitations of Claim 6, further limiting said system command, but fails to make clear how the evaluator would transmit each input event in response to a function implemented in an operating system.

21.   Regarding Claim 16, it is unclear how an automated evaluation of the application program is performed based on what is previously claimed. It is unclear how the act of comparing the simulation result to the corresponding reference result relates to performing an automated evaluation of the application program.

22.   Claims not specifically mentioned are rejected by virtue of their dependence.

Claim Interpretation

23.   The broadest reasonable interpretation of the claims has been afforded the instant claimed invention. However, due to the rejections under 35 U.S.C. §112 above, the following claim interpretations have been made. The interpretations have been drawn from the teachings held within the specification as filed and that of teachings in the prior art.

24.   Regarding Claim 6, "simulator" has been interpreted as "emulator", per page 7, lines 16-22. See Microsoft Computer Dictionary, Fifth Edition, emulator: hardware or software designed to make one type of computer or component act as if it were another. The "simulator" is used to emulate the operation of an application program on a target system and is thus interpreted as an "emulator".

25.   Further, regarding Claim 6, "evaluator" has been interpreted as "validator", per page 4, lines 12-21. See Encarta World English Dictionary, validate: 1. confirm the truthfulness of. The "evaluator" compares the emulated result to a reference result to validate the operation of the application program being emulated.

26.   Further, regarding Claim 6, "in response to a system command" has been interpreted as "through an operating system command" in light of the rejections under 35 U.S.C. §112, first paragraph.

Claim Rejections - 35 USC § 102

27.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. §102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

28.   Claims 6-16 are rejected under 35 U.S.C. §102(b) as being anticipated by

Tuttle et al.

29.   Regarding Claim 6, Tuttle et al. discloses a system and method for testing

computer hardware and software wherein

a host computer stores input data (col 6, lines 1-6) in the form of

input events (col 6, lines 55-59; col 33, lines 12-18),

stores corresponding stored signatures (col 6, lines 31-36; col 29,

lines 58-60).

transmits said input events (col 6, lines 24-30),

to a Digital Video Signal Processing Unit (DVPU) (col 5, lines 62-

64) including an emulator (col 11, lines 11-15; col 23, lines 36-50) which

receives the input events (col 6, lines 24-26),

emulates the input events on the system under test (col 9, lines 15-

24; col 28, lines 36-44), and

comparisons are made between the stored signature and the result

of the emulated input events on the system under test to validate the

results of the emulated event (col 6, lines 36-41; col 8, lines 1-7; col 9, lines 53-55)

It is deemed inherent that a computer system which transmits the contents of a file or performs comparisons based on their data must read the file.

Tuttle et al. teaches that the host may be a UNIX system (col 33, lines 48-60) connected to the DVPU by a RS232 serial data communications port (col 28, lines 53-59). The UNIX operating system provides access to serial ports via device files. A program can communicate across a serial port by opening the device file and reading or writing to it, all supported through the use of operating system commands. (See Chapter 4 of Linux Network Administrator's Guide, enclosed). It is therefore deemed inherent that communication in a UNIX system across a RS232 serial data communications port can be done through operating system commands.

Tuttle et al. discloses that the stored signatures are emulation results trusted to be valid and used at a later time to validate signatures generated in response to emulated input events (col 6, lines 11-16; col 6, lines 36-41).

30.   Regarding Claim 7, Tuttle et al. discloses that the DVPU includes a System Under Test Interface Port (SIF) (col 11, lines 11-15). The SIF includes a memory (col 13, line 61-col 14, line 3) or is realized using system memory of the system under test (col 25, lines 31-32). The SIF operates as a series of

input/output ports between the host and system under test (col 26, lines 42-55). The SIF includes TX DATA and RX DATA registers (col 26, lines 56-59) which comprise the communication path between the host and the DVPU within the system under test (col 27, lines 2-4). The DVPU communicates with the host using an industry standard RS232 serial data communications (col 28, lines 53-59). Thus the SIF includes memory that is accessible to both the emulator of the DVPU and the validator on the host.

31.   Regarding Claim 8, Tuttle et al. discloses the use of validator software on a host computer (col 28, lines 61-66) and an emulator as a circuit board installed in a second computer (col 10, lines 32-48), thus the evaluator and emulator are both embodied in a computer. Further, the host and system under test, being connected by RS232 serial data communications port, form a larger device capable of processing information to produce a desired result. Thus the combination of the host, RS232 serial data communications port, and system under test form a single computer. See Microsoft Computer Dictionary, Fifth Edition. Computer: Any device capable of processing information to produce a desired result. No matter how large or small they are, computers typically perform their work in three well-defined steps: (1) accepting input, (2) processing the input according to predefined rules (programs), and (3) producing output.

32.   Regarding Claim 9, Tuttle et al. discloses the use of software modules on the host system (col 3, lines 22-31; col 6, lines 31-36). Further, Tuttle discloses that the comparison between the stored signatures and the signatures generated by emulating input events can be performed by the host system (col 9, lines 53-

58) using its software modules (col 32, lines 19-21). Additionally, the host system can be virtually any computer capable of executing a computer program (col 28, line 65-col 29, line 2), teaching that the host system must at least be capable of running a validation program.

33.   Regarding Claim 10, an application programming interface is a set of routines used by an application program to direct the performance of procedures by the computer's operating system (See Microsoft Computer Dictionary, Fifth Edition). The UNIX operating system provides access to serial ports via device files. A program can communicate across a serial port by opening the device file and reading or writing to it (See Chapter 4 of Linux Network Administrator's Guide, enclosed). In this way, the UNIX file system and commands to support said file system provide a set of routines to direct performance of procedures of the operating system pertaining to serial data communications. Tuttle et al. discloses the use of a RS232 serial data communications port to transmit event data from the validation software modules on the host to the system under test (col 28, lines 53-59). It is deemed inherent that in communicating across a RS232 serial data communications port on a UNIX system, the UNIX file system and commands to support said file system are used to provide an application programming interface for communicating between the validator and emulator.

34.   Regarding Claim 11, an operating system controls access and usage of hardware resources such as a serial data communications port (See Microsoft Computer Dictionary, Fifth Edition). Tuttle et al. discloses the use of a RS232 serial data communications port to transmit event data from the validation

software modules on the host to the system under test (col 28, lines 53-59). Also

disclosed is the use of UNIX or a Microsoft operating system (col 33, lines 48-

60). In a UNIX operating system, access to a serial port is controlled through

device files in the file system and functions implemented in the operating system

to control access to and usage of said file system (See Chapter 4 of Linux

Network Administrator's Guide, enclosed). It is deemed inherent that in

communicating across a RS232 serial data communications port on a UNIX

system as disclosed the UNIX file system and functions implemented in the

operating system are used.

35.   Regarding Claim 12, Tuttle et al. discloses

the use of an test script file (col 7, lines 19-30) which contains the

input data for each input event to be emulated, and

generating the signatures that correspond to the input events and

storing said signatures in a signature file (col 7, lines 41-44).

Tuttle et al. does not explicitly teach the generation of a signature

file to correspond to each input event but this can be achieved trivially by

commanding the DVPU to capture the visual display after each input event

is recorded (col 6, lines 11-16; col 6, lines 31-36; col 9, col 7, lines 31-38).

36.   Regarding Claim 13, Tuttle et al. discloses that the data stored in the test

script files is composite data (col 7, lines 23-24), composite data consisting of

input data, DVPU/Host commands, and comments (col 6, lines 64-66). Also,

when the take-signature command is stored in the test script file, a command

marker is stored with it (col 34, lines 58-64). Tuttle et al. also discloses the

practice of inserting comment and title data into the test script file (col 31, lines 51-59).

37.   Regarding Claim 14, Tuttle et al. discloses that the most prevalent signature among several be stored in the signature file. The frequency of stored signatures can be set by the user (col 30, lines 30-35). The presence or omission of a given signature in the signature file is a data element relating to the frequency with which it occurs as an emulated result. Additionally, storing a take-signature command marker in the test script file is intended to identify which take-signature command may have caused an error and in this way is identifying data corresponding to each signature stored in the signature file (col 34, lines 58-64).

38.   Regarding Claim 15, Tuttle et al. discloses that upon detecting an error, the host user receives an indication that an error has occurred (col 8, lines 6-7). Further, the user records input events using a keyboard, mouse, or other pointer device (col 33, lines 13-18) attached to the host computer (col 3, lines 33-35). It is therefore deemed inherent that the host system must have a means of display to notify the user of errors and to facilitate recording input events generated by a keyboard or mouse.

39.   Regarding Claim 16, Tuttle et al. discloses a method for evaluation a program comprising the steps of:

reading input events from a test script file (col 35, lines 6=12),

reading corresponding reference results from a signature file (col 35, lines 28-34),

emulating the input events (col 35, 23-28; col 28, lines 36-40),

comparing the resulting signatures with the reference result (col 35, lines 34-38),

performs an automated validation of the program based on the comparison between the signature and reference result (col 32, lines 23-29)

It is deemed inherent that a computer system which transmits the contents of a file or performs comparisons based on their data must read the file.

Conclusion

40.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are listed on the accompanying P.T.O. 892.

Pullela is cited but not applied though considered pertinent for teaching that a simulator may simulate a program in its final form as though it were running on a target system without a simulator.   The result of a simulated operation is returned to the a diagnostic/testing program.

Binoeder et al. is cited but not applied though considered pertinent for teaching a programmatic comparator system which can be event driven and detects errors by comparing test results to known good results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Proctor whose telephone number is (703)305-0542. The examiner can normally be reached on 8am-4pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin J Teska can be reached on (703)305-9704. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason Proctor
Examiner
Art Unit 2123

jsp

KEVIN J. TESKA
SUPERVISORY
PATENT EXAMINER